



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION 8, MONTANA OFFICE  
FEDERAL BUILDING, 10 West 15<sup>th</sup> St, Suite 3200  
HELENA, MONTANA 59626**

Ref: 8MO

March 19, 2013

Mr. John Gubel  
Cabinet District Ranger  
Kootenai National Forest  
2693 Highway 200  
Trout Creek, Montana 59874

Re: CEQ 20130024; EPA comments on Pilgrim Creek Timber  
Sale Project DEIS

Dear Mr. Gubel:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Pilgrim Creek Timber Sale Project prepared by the Cabinet Ranger District, Kootenai National Forest, in accordance with EPA's responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act, and the Council on Environmental Quality (CEQ) regulations, 40 CFR Parts 1500-1508. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document.

The EPA recognizes the forest health, tree mortality and insect/disease infestations issues, big game forage, and local timber economy needs in the Pilgrim Creek project area of the Kootenai National Forest (KNF). Our concerns with the proposed project are primarily associated with the extent of proposed construction of new roads and the adequacy of funding to maintain existing and proposed new roads in the project area. The DEIS acknowledges that forest roads can cause substantial degradation of salmonid habitats in streams, affecting natural sediment and hydrologic regimes by altering streamflow, sediment loading, sediment transport and deposition, channel morphology, channel stability, substrate composition, and water quality within a watershed.

The KNF's preferred alternative, Alternative 3, includes 5.8 miles of new road construction (including 1.1 miles of temporary road). Alternative 4 proposes no new road construction, accessing proposed timber harvests only from the existing road system (which appears to be extensive). We consider Alternative 4 to be a more judicious selection for the preferred alternative than Alternative 3, since Alternative 4 involves no construction of new roads; is the only alternative with a positive present net value of timber harvest (+\$56,822 for Alternative 4 vs. a negative \$356,884 for Alternative 3; provides the highest amount of revenue, \$937,523 of all alternatives; and addresses the project purpose and need

with only 142 fewer acres of timber harvest than Alternative 3, while still producing 21,288 CCF in sawtimber vs. 24,544 CCF sawtimber production with Alternative 3. Table 3-28 also shows that Alternative 3 impacts 2,101 acres with road construction and use, while significantly less acreage, 1,281 acres, would be impacted by road construction and use with Alternative 4.

We generally encourage minimization of new road construction, especially roads near streams and that require new stream crossings, and roads on steep slopes or erosive soils or other environmentally sensitive areas. Road construction can result in significant sediment production and transport. Roads are often the major anthropogenic sediment source adversely affecting hydrology, water quality, and fisheries. Roads and motorized uses can also adversely affect wildlife habitat, connectivity and security, and air quality, and promote spread of weeds and cause other adverse ecological effects.

We also note that the project area already has many existing roads and high road density. There are approximately 176 total miles of road in the project area, with 115 miles of Forest Service Roads, 31 miles of private roads and 30 miles of County roads. We estimate road density in the overall project area to be approximately 3.13 mi/mi<sup>2</sup> (i.e., adding up road miles and areas of all drainage basins in Table 3-53), and road densities are much higher in certain drainage basins (e.g., Cabinet Gorge Tributary 806 = 5.9 mi/mi<sup>2</sup>; South Fork Pilgrim Creek = 5.8 mi/mi<sup>2</sup>; West Fork Pilgrim Creek = 3.7 mi/mi<sup>2</sup>; Hemlock Gulch = 11.5 mi/mi<sup>2</sup>; South Fork + Telegraph = 4.3 mi/mi<sup>2</sup>). While the DEIS states that many of the existing roads are old and overgrown and no longer have exposed surfaces that contribute sediment to nearby streams (page 3-184), we note that older roads were often built with outdated management practices (those dating from the 1950s to the mid-1970s).

We did not see a compelling case presented in the DEIS explaining how the 142 acres of additional timber harvests proposed with Alternative 3 would address the project purpose and need that much better to justify the proposed construction of 5.8 miles of new road in an area with so many existing roads. We also note the significant cost for 5.8 miles of new road construction. Land management decisions involve environmental and resource management trade-offs (i.e., trade-offs in impacts among vegetation treatments, restoration of vegetative conditions, fire risk and fuels, forest health, wildlife, water quality and fisheries, air quality, weed spread, and other resource impacts). From our perspective selection of Alternative 4 as the preferred alternative would provide a better balance for the various trade-offs.

If there is a compelling forest health or other need for some of the 142 acres of additional timber harvests with Alternative 3 in comparison to Alternative 4, perhaps a modified alternative could be developed for conduct of additional necessary timber harvest with a lesser amount of new road construction (i.e., an alternative between Alternatives 3 and 4, with less than 5.8 miles of new road construction). We also recommend additional discussion explaining the rationale for selection of the preferred alternative be provided in the FEIS.

The DEIS also states that routine road maintenance would occur as needed in the analysis area, and that no significant changes in road maintenance are expected over the next 10 years. This causes some concern since it is known that prolonged under-funding of road maintenance on National Forests has

often resulted in degraded road conditions, and there is a significant backlog of road maintenance needs on National Forests (Source: *"Rightsizing" the Forest Service Road System Part 1: Road Trend Analysis*, March 22, 2007). Adequate funding for road maintenance and implementation of road BMPs is needed to address water quality effects of roads. Conduct of proper road inspections, maintenance and improvements to forest road systems and road BMPs and drainage improvements are critical for protecting aquatic health.

The DEIS states that road logs have been generated within the project area to address the need for road BMP's, potential for mass failure, and road related sediment contributions from roads. However, it is not clear how often road BMP inspections are currently carried out and if road maintenance funding is adequate to properly maintain existing and newly proposed roads to avoid road sediment production/transport to surface waters over the long-term. In addition it is stated that implementation of some road BMPs and replacement of undersized road culverts depend on funding availability. We recommend that the FEIS include additional discussion of road BMP inspection frequency, and adequacy of funding to implement and maintain needed road BMPs when they are in need of repair. If existing roads cannot be properly maintained, it adds to concerns regarding the ability to maintain any new roads that may be proposed for construction.

Finally the DEIS indicates that past timber harvests (1950s thru the 1980s) included approximately 3,570 acres of harvest, and effects from past harvests are still evident in some of the stream channels within the Pilgrim Creek project area including lack of adequate riparian vegetation, bank destabilization and over widened conditions. Fish habitat conditions measured during the 2003 field season did not meet Inland Native Fish standards for pool frequency and width/depth ratio in a majority of surveyed reaches, and Table 3-50 shows that Smeads Creek, Hemlock Gulch, and Cabinet Gorge Tributary 823 all have high percentages of prior clearcuts and very high peak flow increases. We found it difficult to determine which proposed new timber harvest units were located in these drainages by evaluating the Figure 3-16 watershed map relative to the alternatives maps in Appendix A. We suggest that the FEIS better identify the watershed in which proposed treatment units are located. We did not see this information clearly displayed in the DEIS.

We are pleased that the DEIS states that the District Hydrologist evaluated the potential hydrologic effects of the project in watersheds with high amounts of prior clearcuts and peak flow increases and does not believe that increased peak flows would result in adverse effects, stating that beneficial uses will be protected and peak flow increases will not negatively affect channel parameters such as width/depth ratio, bank stability, and sediment transport efficiency. Predicted peak flows in all of the basins of the planning area are stated to be at or below recommended threshold levels for peak flow increases, and all basins in the project area would be below threshold limits for channel stability in all alternatives.

The EPA's further discussion and more detailed questions, comments, and/or concerns regarding the analysis, documentation, or potential environmental impacts of the Pilgrim Creek Timber Sales DEIS are included in the enclosure with this letter. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and

alternatives in an EIS, the DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). EPA concerns involve the potential for adverse environmental effects from new road construction and high road density with the preferred alternative, and concerns about adequacy of funding to properly maintain existing and proposed new roads. We have fewer concerns about Alternative 4 that includes no new road construction. A copy of EPA's rating criteria is attached. We recommend additional analysis and information to fully assess and mitigate all potential impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our comments please contact Mr. Steve Potts of my staff in Helena at 406-457-5022 or in Missoula at 406-329-3313 or via e-mail at [potts.stephen@epa.gov](mailto:potts.stephen@epa.gov). Thank you for your consideration.

Sincerely,



Julie A. DalSoglio  
Director  
Montana Office

Enclosures

cc: Suzanne Bohan/Judy Roos, EPA 8EPR-N, Denver  
Dean Yashan/Robert Ray, MDEQ, Helena

## **EPA COMMENTS ON THE PILGRIM CREEK TIMBER SALE PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)**

### **Brief Project Overview:**

The Kootenai National Forest (KNF), Cabinet Ranger District, developed the Pilgrim Creek Timber Sale Project to increase forest resilience to insects, disease and disturbance by increasing age class diversity in lodgepole pine stands, improving growing conditions, and promoting tree species resistant to root disease, while improving big game forage and providing timber for the local economy. Insects, particularly mountain pine beetles, are currently infesting a high proportion of the lodgepole pine stands causing significant tree mortality, with beetle activity increasing notably between the 2009 and 2010 seasons. The Pilgrim Creek project area is located west southwest of Noxon, Montana, encompassing approximately 36,602 acres, including 29,987 acres of National Forest System (NFS) lands. The area includes Pilgrim Creek and its tributaries, Fourmile Gulch, Baxter Gulch, Telegraph Creek, Skeleton Creek, West Fork Pilgrim and South Fork Pilgrim, as well as Smeads Creek, Stevens Creek, and smaller tributaries, some of which drain directly into the Clark Fork River. No action and four action alternatives including the proposed action were evaluated in the DEIS.

Alternative 1 is the no action alternative involving no timber harvest, prescribed fire, road construction or other actions, and is evaluated to provide a baseline for comparison to the environmental consequences of the action alternatives.

Alternative 2, the proposed action, involves 1,411 acres of timber harvest (587 acres regeneration, 796 acres of commercial thinning, 28 acres aspen enhancement; and 431 acres logging by tractor, 980 acres by skyline cable); 4,564 acres of ecosystem burning and 1,411 acres of slash burning; 4 miles of new road construction (including 1.6 miles temporary road) with 47 miles of road reconstruction and BMP implementation. Timber harvest would create eight openings over 40 acres for a total of 548 acres. Commercial harvests would provide 19,484 CCF in sawtimber, and generate \$326,747 in revenue.

Alternative 3, the preferred alternative, was developed to respond to issues regarding the economic feasibility of implementing the proposed action and the increased lodgepole pine mortality occurring due to mountain pine beetle activity in the project area. Alternative 3 involves 1,434 acres of timber harvest (898 acres regeneration, 510 acres of commercial thinning, 26 acres aspen enhancement; and 551 acres logging by tractor, 883 acres by skyline cable); 4,564 acres of ecosystem burning and 1,434 acres of slash burning; 5.8 miles of new road construction (including 1.1 miles temporary road) and 47 miles of road reconstruction and BMP implementation. Timber harvest would create seven openings over 40 acres for a total of 1,002 acres. Commercial harvests would provide 24,544 CCF in sawtimber, and generate \$776,817 in revenue.

Alternative 4 was developed to evaluate an alternative with no new roads to capture the economic value in lodgepole pine being affected by mountain pine beetle that could be accessed from the existing road system. Alternative 4 involves 1,290 acres of timber harvest (813 acres regeneration, 451 acres of commercial thinning, 26 acres aspen enhancement; and 550 acres logging by tractor, 740 acres by

skyline cable); 4,564 acres of ecosystem burning and 1,290 acres of slash burning; no new road construction and 47 miles of road reconstruction and BMP implementation. Timber harvest would create 5 openings over 40 acres totaling 798 acres. Commercial harvests would provide 21,288 CCF in sawtimber, and generate \$937,523 in revenue.

Alternative 5 was developed to evaluate an alternative that built no new roads, created no openings over 40 acres in size, did not require any amendments to the Forest Plan, and met the purpose and need for action. This alternative emphasized harvest of dead and dying lodgepole pine to the extent that was feasible from existing roads and keeping opening size under 40 acres. Alternative 5 involves 632 acres of timber harvest (261 acres regeneration, 371 acres of commercial thinning; no aspen enhancement, and 383 acres logging by tractor, 249 acres by skyline cable); 4,564 acres of ecosystem burning and 632 acres of slash burning; no new road construction and 47 miles of road reconstruction and BMP implementation. Timber harvest would create no openings over 40 acres. Commercial harvests would provide 7,012 CCF in sawtimber, and generate \$47,681 in revenue.

#### **Comments:**

1. We appreciate the inclusion of clear narrative descriptions of alternatives in the DEIS, including discussion of background information, project design features and mitigation measures, alternatives considered but eliminated from detailed study, tables summarizing activities and features included in the four action alternatives, Table 2-16 comparing alternatives, and the many informative Appendices (particularly the appendices on Maps, Access Management, BMPs, and Monitoring). The DEIS narrative, tables, maps, and appendices facilitate improved project understanding, help define issues, and assist in evaluation of alternatives providing a clearer basis of choice among options for the decisionmaker and the public in accordance with the goals of NEPA.
2. The symbols on the map legends on the alternatives maps (Appendix A) intended to differentiate shelterwood, seedtree and commercial thinning harvest units are difficult to ascertain. We suggest using an improved means of differentiating harvest types for treatment units on these maps that would be clearer to the public (e.g., use larger map legend and clearer/larger symbols; use of varied crosshatching, dots, or different colors rather than symbols; etc.).

#### **Preferred Alternative**

3. The DEIS identifies Alternative 3 as the preferred alternative. However, EPA considers Alternative 4 to be a better selection for the preferred alternative, since Alternative 4 involves no construction of new roads; provides the highest amount of revenue, \$937,523 of all alternatives (Table 3-97, page 3-339); is the only alternative with a positive present net value of timber harvest (+\$56,822 for Alternative 4 vs. a negative \$356,884 for Alternative 3, Table 2-16, page 2-55); and Alternative 4 addresses the project purpose and need with only 142 fewer acres of timber harvest while producing 21,288 CCF in sawtimber vs. 24,544 CCF sawtimber production with Alternative 3. Table 3-28 (page 3-118) also shows significantly less acreage impacted by road construction and use for Alternative 4 (1,281 acres for Alternative 4 vs. 2,101 acres for Alternative 3).

Road construction can result in significant sediment production and transport. Roads are often the major anthropogenic sediment source adversely affecting hydrology, water quality, and fisheries. Roads and motorized uses can also adversely affect wildlife habitat, connectivity and security, and air quality, and promote spread of weeds and cause other adverse ecological effects. We generally encourage minimization of new road construction, especially roads near streams and that require new stream crossings, and roads on steep slopes or erosive soils or other environmentally sensitive areas.

We also note that the project area already has many existing roads and high road density. There are approximately 176 total miles of road in the project area, with 115 miles of Forest Service Roads, 31 miles of private roads and 30 miles of County roads (page 3-244). We estimate road density in the overall project area to be approximately 3.13 mi/mi<sup>2</sup> (adding up road miles and areas of all drainage basins in Table 3-53, page 3-178), and road densities are much higher in some drainage basins (e.g., Cabinet Gorge Tributary 806 = 5.9 mi/mi<sup>2</sup>; South Fork Pilgrim Creek = 5.8 mi/mi<sup>2</sup>; West Fork Pilgrim Creek = 3.7 mi/mi<sup>2</sup>; Hemlock Gulch = 11.5 mi/mi<sup>2</sup>; South Fork + Telegraph = 4.3 mi/mi<sup>2</sup>). While the DEIS states that many of the existing roads are old and overgrown and no longer have exposed surfaces that contribute sediment to nearby streams (page 3-184), we note that older roads were often built with outdated management practices (those dating from the 1950s to the mid-1970s).

We did not see a compelling case presented in the DEIS explaining how the 142 acres of additional timber harvests proposed with Alternative 3 would better address the project purpose and need and justify the proposed construction of 5.8 miles of new road in an area with many existing roads. We also note the significant cost for 5.8 miles of new road construction. Land management decisions involve environmental and resource management trade-offs (i.e., trade-offs in impacts among vegetation treatments, restoration of vegetative conditions, fire risk and fuels, forest health, wildlife, water quality and fisheries, air quality, weed spread, and other resource impacts). From our perspective selection of Alternative 4 as the preferred alternative provides a more reasoned evaluation of the various trade-offs.

If there is a compelling forest health or other need for some of the 142 acres of additional timber harvests with Alternative 3 in comparison to Alternative 4, perhaps a modified alternative could be developed for additional necessary timber harvest from a lesser amount of new road (i.e., an alternative between Alternatives 3 and 4, with less than 5.8 miles of new road construction). We also recommend that additional discussion explaining the rationale for selection of the preferred alternative be provided in the FEIS.

#### Water Resources/Hydrology/Fisheries

4. Thank you for including the project area watershed map showing sixteen 7<sup>th</sup> code HUC (hydrologic unit code) boundaries (Figure 3-69, pages 3-159). The DEIS indicates that the 7<sup>th</sup> code HUCs range in size from 505 acres to 6482 acres (Table 3.48), consist of 1st, 2nd and 3rd order drainages, and that the mainstem of Pilgrim Creek and the mainstem of Stevens Creek are the dominant perennial

channels in the project area (page 3-169). This map with associated watershed information facilitates improved project understanding and evaluation of the watershed analyses in the DEIS.

5. The DEIS references Montana's 1996 and 2002 Clean Water Act, Section 303(d) list of water quality impaired waters. We note that a more recent 2012 Montana Dept. of Environmental Quality (MDEQ) list of water quality impaired waters is available. We suggest that the more recent 2012 Montana 303(d) list be referenced rather than the old 1996 and 2002 lists. The 2012 water quality impairment list indicates that 6.9 miles of Pilgrim Creek is impaired, exhibiting only partial support of aquatic life uses due to physical substrate habitat limitations, with probable sources listed as channelization, grazing in riparian or shoreline zones, and streambank modifications/destabilization (<http://cwaic.mt.gov/>). Although we note that water quality impairment in Pilgrim Creek is still considered to be related to impacts to stream substrate and aquatic habitat rather than pollutant contributions (sediment) similar to what was reported in the earlier 303(d) lists and DEIS (page 3-161). Accordingly a total maximum daily load (TMDL) is still not required for Pilgrim Creek.

Although we note that the distinction between water quality impairment due to sediment (a pollutant) and substrate habitat limitations (considered habitat impact) is confusing when the aquatic habitat being impacted is stream substrate from sedimentation. The DEIS states that Pilgrim Creek is affected by excessive in-channel sediment and continued sediment delivery from bank erosion, natural catastrophic fire and flood events, timber harvest, agriculture, grazing practices, and the forest road network (page 3-169). We appreciate the clear and objective disclosure of aquatic impacts in the DEIS.

We recommend that the KNF consult with Montana DEQ TMDL program staff to assure that the MDEQ considers the proposed Pilgrim Creek Timber Sales Project to be consistent with the Lower Clark Fork Tributaries Sediment TMDLs and Framework for Water Quality Restoration, <http://deq.mt.gov/wqinfo/TMDL/finalReports.mcp> , (e.g., contact MDEQ staff such as Mr. Dean Yashan at 406-444-5317, and/or Mr. Robert Ray at 406-444-5319). We also encourage review of the MDEQ's pamphlet, "*Understanding the Montana TMDL Process.*" <http://deq.mt.gov/wqinfo/TMDL/default.mcp> .

6. In regard to water yield the DEIS indicates that past timber harvests (1950s thru the 1980s) included approximately 3,570 acres of harvest, and these harvests are stated to be responsible for most of the water yield increases observed today (page 3-168). The DEIS states that effects from past harvests are still evident in some of the stream channels within the Pilgrim Creek project area including the lack of adequate riparian vegetation, bank destabilization and over widened conditions. Fish habitat conditions measured during the 2003 field season did not meet Inland Native Fish (INFS) standards for pool frequency and width/depth ratio in a majority of surveyed reaches (page 3-229). Table 3-50 (page 3-172) shows current percent equivalent clearcut acreage (ECA) and peak flow increases (PFI) for each seventh code HUC. We note that Table 3-49 is referenced in the DEIS narrative on page 3-170, when we believe Table 3-50 is the table with water yield information that should have been referenced. Also Table 3-55 is referenced on page 3-187 in relation to new road construction adding



to ECAs within each basin, however, Table 3-55 shows RHCA Default Buffer Widths so it is likely Table 3-54 should have been referred to instead of Table 3-55.

7. Table 3-50 shows that Smeads Creek, Hemlock Gulch, and Cabinet Gorge Tributary 823 all have high percentages of prior clearcuts and very high peak flow increases. We found it difficult to determine which proposed new timber harvest units were located in these drainages by evaluating the Figure 3-16 watershed map relative to the alternatives maps in Appendix A. We suggest that the FEIS better identify the watershed in which each proposed treatment unit is located. We did not see this information clearly displayed in the DEIS. It appears that treatment units 1, 2, 3, 4, 5, and 6 may be located in the Smeads Creek, Hemlock Gulch, and Cabinet Gorge Tributary 823 watersheds that already have high percentages of previous clearcut and peak flow increases.
8. Table 3-54 (page 3-182) shows predicted changes in peak flows by alternative. Table 3-54 like Table 3-50 show high peak flow increases in the Smeads Creek, Hemlock Gulch, and Cabinet Gorge Tributary 823 watersheds. Table 3-54 shows no increase in peak flow between no action and action alternatives in the Cabinet Gorge Tributary 823 watershed. We assume that this means that no additional timber harvest is proposed in Cabinet Gorge Tributary 823 watershed with the Pilgrim Creek Timber Sale Project. Is this correct?

Peak flows increase in the action alternatives (in comparison to the no action alternative) in the Smeads Creek and Hemlock Gulch watersheds (e.g., peak flow increase from 18% to 23% in Smeads Creek watershed with the preferred alternative; increase from 13% to 14 % in the Hemlock Gulch watershed with the preferred alternative). It appears, therefore, that additional timber harvests may be proposed in the Smeads Creek and Hemlock Gulch watersheds. This causes some concern, since additional harvests in these watersheds have potential to further increase already high peak flows.

The DEIS indicates, however, that Smeads Creek is a dry draw that does not connect to other tributaries, and Table 3-51 (page 3-176) shows that Smeads Creek and Hemlock Gulch have “good” channel stability and “low” erosion potential and “low” sensitivity to destabilization. The DEIS also states that the District Hydrologist evaluated potential hydrologic effects in these watersheds and does not believe that increased peak flows would result in adverse effects, further stating that peak flow increases will not negatively affect channel parameters such as width/depth ratio, bank stability, and sediment transport efficiency, and that beneficial uses will be protected (page 3-184). Predicted peak flows in all of the basins of the planning area are stated to be at or below established recommended peak flow increases (page 3-184), and all basins in the project area would not exceed threshold limits of channel stability in any alternative (page 3-197).

While we have concerns regarding timber harvest in watersheds with such high levels of previous clearcuts and high water yield, we appreciate the DEIS discussion regarding this situation and KNF staff perspectives that stream channels and banks would not be destabilized by proposed additional timber harvest and prescribed burning.

9. Table 3-63 (page 3-219), showing predicted peak flow increase (PFI) for fish bearing watersheds, indicates that the largest cumulative PFIs would occur in the Skeleton Creek (15%) and W. Fork Pilgrim Creek (12%) watersheds. Also implementation of new road construction under Alternative 2 would require one new stream/RHCA crossings of an unnamed tributary to West Fork Pilgrim Creek, and Alternative 3 would require two such new stream crossings (NFSR 2744C and 2744D , page 3-221). Skeleton Creek and W. Fork Pilgrim Creek are shown to have existing “poor” channel conditions in Table 3-51, and it is known that roads can alter the timing and magnitude of peak flows and change base stream discharge and sub-surface flows, and road stream crossings can intercept water and sediment and directly route it to streams (page 3-220).

This creates some concern regarding potential effects of additional timber harvest in the Skeleton Creek and W. Fork Pilgrim Creek watersheds, and road construction in the W. Fork Pilgrim Creek drainage in Alternatives 2 and 3 in regard to exacerbating existing “poor” channel conditions. Although again we appreciate the additional discussion provided in the DEIS (pages 3-221 and 3-222) indicating that road BMP work would reduce surface flow and sediment channeled to streams by roads, and up to 24 undersized culverts could be replaced, with 14 culvert replacements in the West Fork Pilgrim Creek drainage, 3 in the Pilgrim Creek drainage, 1 in the Skeleton Creek drainage, and 3 in the Stevens Creek drainage, all fish bearing watersheds.

Some uncertainty is created, however, in regard to whether all this BMP and culvert replacement work would be carried out, since these activities are stated to depend on funding availability (page 3-22), and we know road maintenance funding is limited. We consider it important that adequate funding be provided to assure that proposed BMP work and culvert replacements take place to avoid exacerbating existing “poor” channel conditions. We encourage the KNF to implement the proposed road BMP work that is needed, particularly replacement of all undersized culverts.

10. A total of 4,564 acres is proposed for burning in the project area with approximately 2,165.8 acres (47%) occurring in drainages supporting fisheries (page 3-224). In regard to the potential water yield increase associated with prescribed fire the DEIS states that no direct or indirect effects on water yield are anticipated from prescribed burning (page 3-185). It appears likely to us that prescribed burning would have some effect on water yield, at least in the short term. The accuracy of this DEIS statement, therefore, appears questionable. However, we fully support reintroduction of fire to forest landscapes that evolved with fire as a means of managing fuel loads and restoring natural ecosystem processes, and we agree that significant or lasting water yield effects should not result from properly managed prescribed burning. We also agree that use of prescribed fire allows the land manager to reduce future wildfire severity and risk of creating larger areas burned at high intensity, and thus, even higher water yields (page 3-186). We also appreciate the DEIS discussion of prescribed burning effects on aquatic habitat (page 3-224 and 3-225).
11. We appreciate the many project design features and mitigation measures proposed to protect water quality and soils (e.g., limiting ground-based yarding to slopes below 35 percent and using cable logging on steeper slopes; harvesting on only dry or frozen soils; 75 or greater distances between skid trails and placing slash and/or waterbars on skid trails; seeding landings, scattering coarse down

woody throughout harvest units, etc, pages 2-43 to 2-49, page 3-193). Although we note some inconsistency in the DEIS in regard to use of skyline cable logging on slopes over 35% or on slopes over 40%. We suggest that the FEIS more consistently indicate that skyline cable rather than tractor logging will be used on slopes greater than 35%.

We fully support use of appropriate BMPs to reduce water quality impacts of timber harvests, prescribed burns and road construction activities. We often suggest mitigation measures such as use of existing skid trails wherever possible; restrictions on skidding with tracked machinery in sensitive areas; using slash mats to protect soils; constructing water bars; creating brush sediment traps; adding slash to skid trail surfaces after recontouring and ripping; scarifying compacted soils prior to seeding/planting of forbs, grasses or shrubs to reduce soil erosion and hasten recovery; as well as recontouring, slashing and seeding of temporary roads and log landing areas following use to reduce erosion and adverse impacts to soils.

12. Roads and motorized uses often affect watershed conditions, water quality and fisheries in streams on National Forests. Sediment from roads, particularly during road construction, and from poorly maintained roads with inadequate road drainage and many stream crossings, is often of concern. Roads are often the major anthropogenic sediment source adversely affecting hydrology, water quality, and fisheries. The DEIS acknowledges that forest roads can cause substantial degradation of salmonid habitats in streams, affecting natural sediment and hydrologic regimes by altering streamflow, sediment loading, sediment transport and deposition, channel morphology, channel stability, substrate composition, and water quality within a watershed (page 3-220).

We appreciate the DEIS discussion of the effects of roads on watersheds and water quality, and disclosures of road conditions and estimated road sediment yield in the DEIS (pages 3-165 to 3-200, Pages 3-220 to 2-224). The preferred alternative would involve 4.7 miles of new road construction and 1.1 miles of temporary road construction, and 47 miles of road reconstruction and BMP implementation. It is not clear if the approximately 5.2 miles of closed road that would be reopened and used in Alternative 2 (page 2-13) would also be reopened and used in Alternative 3. This should be clarified in the FEIS.

Proposed new road construction with the preferred alternative would cross two live channels, and upgrades to culverts would occur at approximately six locations (page 3-187). The DEIS acknowledges that some level of sediment production is likely to occur during road construction, particularly at the two stream crossing locations, although it is stated that BMPs will minimize long-term sediment contributions. The DEIS states that proper sizing and installation of culverts, placement of drain dips on both sides of water crossings, and implementation of proper road design criteria and adherence to INFS Standards and Guidelines within Riparian Habitat Conservation Areas (RHCA's) are expected to prevent negative impacts on water quality or beneficial uses.

We appreciate the recognition of potential road effects on water quality and aquatic habitat, and the KNF's commitment to properly design roads and incorporate appropriate BMPs to reduce effects on water quality, including listing some road BMPs (pages 3-192 and 3-193). Table 3-65 (page 3-223) shows significant reduction in sediment delivery to fish bearing streams as a result of road BMP

implementation. Although as noted earlier, we often have concerns regarding the adequacy of funding to properly maintain road BMPs over time, since roads need to be routinely inspected and road BMPs evaluated in regard to their effectiveness, and road BMPs improved and/or maintained as necessary to remain effective.

The DEIS states that routine road maintenance would occur as needed primarily on the publicly open NFSR roads in the analysis area (e.g., road blading, gate repair/replacement, cleaning ditches and culverts, installing culverts, replacing culverts with larger diameter culverts, installing drain dips and surface water deflectors, placing riprap to armor drainage structures, placement of aggregate, brushing, and debris removal, page 3-196). Although the DEIS also states that no significant changes in road maintenance are expected over the next 10 years.

This causes concern since it is known that prolonged under-funding of road maintenance on National Forests has often resulted in degraded road conditions, and that there is a significant backlog of road maintenance needs on National Forests (Source: "*Rightsizing*" the Forest Service Road System Part 1: Road Trend Analysis, March 22, 2007). Adequate funding for road maintenance and implementation of road BMPs is needed to address water quality effects of roads. Conduct of proper road inspections, maintenance and improvements to forest road systems and road BMPs and drainage improvements are critical for protecting aquatic health.

The DEIS states that road logs have been generated within the project area to address the need of BMP's on all established haul routes and allow estimate of long-term road stability, the potential for mass failure and road related sediment contributions from roads (page 3-165). However it is not clear how often road BMP inspections are carried out in the project area, and if road maintenance funding is adequate to properly maintain existing and newly proposed roads and avoid road sediment production and transport to surface waters over the long-term. We recommend that the FEIS include additional discussion of road BMP inspection frequency and the adequacy of funding to implement and maintain needed road BMPs when they are in need of repair. If existing roads cannot be properly maintained, it adds to concerns regarding maintenance of any new roads that may be proposed for construction.

Specific concerns regarding road BMPs include addressing road drainage and surface erosion, adequacy of waterbars, drain dips, ditch relief culverts to avoid drainage running on or along roads/trails; interception and routing of sediment to streams; unstable stream crossings and potential for washout; culvert sizing, culvert allowance of fish migration and effects on stream structure and seasonal and spawning habitats; supplies of large woody debris; open road/trail density; reducing unnecessary stream crossings; eliminating fords, armoring stream channels at stream crossings, graveling roads, reducing motorized uses in more erosive areas; road encroachment on stream, riparian, and wetland habitats; and relocating roads away from streams where possible.

13. We are pleased that proposed temporary roads would be located to avoid new water crossings, live water channels, wet areas, seeps or springs, and would be obliterated and recontoured following use (i.e., road surface would be ripped, the berm would be pulled back, and woody debris and seeding

spread over the exposed soil to limit soil movement, and success of revegetation efforts be monitored over time, page 3-187).

14. Table 3-53 (page 3-178) showing existing road densities evidences very high road densities in some watersheds (e.g., Cabinet Gorge Tributary 806 = 5.9 mi/mi<sup>2</sup>; South Fork Pilgrim Creek = 5.8 mi/mi<sup>2</sup>; West Fork Pilgrim Creek = 3.7 mi/mi<sup>2</sup>; Hemlock Gulch = 11.5 mi/mi<sup>2</sup>; South Fork + Telegraph = 4.3 mi/mi<sup>2</sup>). The DEIS states that total road density (TRD) that exceeds 3.5 mi/mi<sup>2</sup> on the KNF is considered “High” in watersheds with 20–45 inches of mean annual precipitation and TRDs exceeding 3.0 mi/mi<sup>2</sup> as “High” in watersheds with >40 inches of mean annual precipitation (page 3-167). There are approximately 176 total miles of road in the project area, with 115 miles of Forest Service Roads, 31 miles of private roads and 30 miles of County roads (page 3-244).

The DEIS also states that “only passive road obliteration is proposed in this project” (page 3-190). Table 2-13 (page 2-42) shows 49 road segments proposed for passive decommissioning for a total of 21 miles, and it states that these road segments have no hydrologic concerns such as sediment delivery to streams, potential for mass failure, ground water interception, or water routing to adjacent drainages (page 2-41). We fully support decommissioning of roads, both passive and active, since as noted above roads often impact water quality and many roads cannot be properly maintained resulting in road sediment transport to streams. Reductions in road density especially road stream crossing density has often been correlated with improved aquatic health.

We also note that lower road densities are often associated with improved wildlife habitat, connectivity and security. In addition, there is often a relationship between higher road density and increased forest use and increased human caused fire occurrences. Reduction in road density, therefore, may also reduce risks of human caused fires, which could be important in an area with high fuels/fire risk and/or wildland/urban interface issues.

We appreciate the discussion following Table 3-54 indicating that the majority of the roads in the project area are grown-in and no longer have exposed surfaces that contribute sediment to nearby streams. The DEIS states, therefore, that road densities shown in the table may be misleading, and that actual conditions are representative of much lower road densities. Although it also states that the road density in the Hemlock Gulch drainage is still high, but that Hemlock Gulch has an intermittent channel, does not support fish, and exhibits dry draw characteristics near the mouth with no surface connectivity to other streams. Accordingly the DEIS states that road densities in the project area are in compliance with the KNF direction.

While we appreciate the passive decommissioning of 49 road segments, and the DEIS statement that road densities are in compliance with KNF direction, we still believe with so many old roads in the project area there may be roads that contribute sediment to surface waters. Older roads were often built with outdated management practices (those dating from the 1950s to the mid-1970s). We ask if there are may be opportunities to passively or actively decommission additional roads in the Pilgrim Creek project area, particularly roads near streams with problem areas for which there are not adequate funds to maintain? We encourage closure and/or decommissioning of roads near streams

with many stream crossings, since removal of these roads are more likely to have water quality benefits than closure and decommissioning of roads on upper slopes and ridges.

15. While we appreciate the discussion and identification of road BMPs and reference to the “Forest Service Standard Specifications for Construction of Roads and Minor Drainage Structures” in DEIS Chapters 2 and 3, we are providing general recommendations regarding roads for your information as follows:

- \* minimize road construction and reduce road density as much as possible to reduce potential adverse effects to watersheds;
- \* locate roads in uplands, away from streams and riparian areas as much as possible;
- \* minimize the number of road stream crossings;
- \* locate roads away from steep slopes or erosive soils and areas of mass failure;
- \* stabilize cut and fill slopes;
- \* provide for adequate road drainage and control of surface erosion with measures such as adequate numbers of waterbars, maintaining crowns on roads, adequate numbers of rolling dips and ditch relief culverts to promote drainage off roads avoid drainage or along roads and avoid interception and routing sediment to streams;
- \* consider road effects on stream structure and seasonal and spawning habitats;
- \* allow for adequate large woody debris recruitment to streams and riparian buffers near streams;
- \* properly size culverts to handle flood events, pass bedload and woody debris, and reduce potential for washout;
- \* replace undersized culverts and adjust culverts which are not properly aligned or which present fish passage problems and/or serve as barriers to fish migration;
- \* use bridges or open bottom culverts that simulate stream grade and substrate and that provide adequate capacity for flood flows, bedload and woody debris where needed to minimize adverse fisheries effects of road stream crossings.

Blading of unpaved roads in a manner that contributes to road erosion and sediment transport to streams and wetlands should be avoided. It is important that road grading focus on reducing road surface erosion and sediment delivery from roads to area streams. Practices of expediently sidecasting graded material over the shoulder and widening shoulders and snow plowing can have adverse effects upon streams, wetlands, and riparian areas that are adjacent to roads. These practices

should be avoided.

Roads are particularly vulnerable to damage during spring breakup as overly-saturated roadbeds from winter freezing are working to dry out, and this typically occurs between March 30 and June 30, but can vary depending on the severity of the winter and spring weather conditions. We encourage avoiding road use during spring breakup conditions, and closing roads to log haul during spring break up to reduce rutting of roads that increase road erosion and sediment delivery, and graveling of haul roads. Snow plowing of roads later in winter for log haul should also be avoided to limit runoff created road ruts during late winter thaws that increase road erosion (i.e., ruts channel road runoff along roads increasing erosion and sediment transport).

We encourage routine conduct of inspections and evaluations to identify conditions on roads and other anthropogenic sediment sources that may cause or contribute to sediment to streams, and to include activities in the project to correct as many of these conditions and sources as possible. Forest Service Region 1 provides training for operators of road graders regarding conduct of road maintenance in a manner that protects streams and wetlands, (i.e., Gravel Roads Back to the Basics). If there are road maintenance needs on unpaved roads adjacent to streams and wetlands we encourage utilization of such training (contact Fred Bower FS R1 Transportation Management Engineer, at 406-329-3354).

We also note that there are training videos available from the Forest Service San Dimas Technology and Development Center for use by the Forest Service and its contractors (e.g., "Forest Roads and the Environment"-an overview of how maintenance can affect watershed condition and fish habitat; "Reading the Traveled Way" -how road conditions create problems and how to identify effective treatments; "Reading Beyond the Traveled Way"-explains considerations of roads vs. natural landscape functions and how to design maintenance to minimize road impacts; "Smoothing and Reshaping the Traveled Way"-step by step process for smoothing and reshaping a road while maintaining crowns and other road slopes; and "Maintaining the Ditch and Surface Cross Drains"-instructions for constructing and maintaining ditches, culverts and surface cross drains).

### Wetlands and Riparian Areas

16. EPA considers the protection, improvement, and restoration of wetlands and riparian areas to be a high priority. Wetlands and riparian areas increase landscape and species diversity, and are critical to the protection of designated water uses. Executive Order 11990 requires that all Federal Agencies protect wetlands. It is important that wetlands and riparian areas be properly managed to maintain and restore the health of watersheds and aquatic resources to sustain aquatic and terrestrial species and provide water of sufficient quality and quantity to support beneficial uses. Adequate riparian vegetation in stream-side areas must be maintained to stabilize streambanks and stream channels during floods and other periodic high flow events.

The DEIS states that small seeps and springs have been identified on Federal land within the project area, and one fairly extensive 15 acre marsh exists around the Smeads bench area of the project,

including on Federal land within the project area (page 3-170). We recommend that harvest units be reviewed in the field to determine the presence of wetlands, and if wetlands are found that they be identified on the Sale Area Map and flagged on the ground to better assure that timber contractors will be able to avoid them.

We are pleased that management direction from the INFS Strategy is incorporated into the KNF Forest Plan (page 3-194), since INFS provides greater protection to soil and water resources in riparian areas adjacent to streams, lakes, and wetlands. Table 3-55 (page 3-185) and Table 3-58 (page 3-202) show RHCA buffer widths where no harvest or use of heavy equipment is allowed around stream channels and wet areas to reduce the risk of sediment delivery to streams, provide a source of large woody debris for channels, and help maintain cooler stream temperatures. Table 3-59 (page 3-203) shows Riparian Management Objectives (RMOs).

RHCAs and RMOs are an important management element in the Interior Columbia Basin (ICB) Strategy to maintain and restore the health of watersheds, riparian, and aquatic resources to sustain aquatic and terrestrial species and provide water of sufficient quality and quantity to support beneficial uses (see <http://www.icbemp.gov/html/icbstrat.pdf> ; and “A Framework for Incorporating the Aquatic and Riparian Habitat Component of the Interior Columbia Basin Strategy into BLM and Forest Service Plan Revisions,” <http://www.icbemp.gov/html/aqripfrm7804.pdf> . It is important that proposed federal land management activities in the ICB are consistent with the riparian management objectives described in the ICB Strategy, which include:

- \* Achieve physical integrity of aquatic ecosystems;
- \* Provide an amount and distribution of woody debris sufficient to sustain physical and biological complexity;
- \* Provide adequate summer and winter thermal regulation;
- \* Provide appropriate amounts and distributions of source habitats for riparian- or wetland-dependent species;
- \* Restore or maintain water quality and hydrologic processes; and.
- \* Restore or maintain naturally functioning riparian vegetation communities.

## Soils

17. Table 3-68 (page 3-241) shows landtypes and soil risk ratings evidencing high erosion risk ratings for a number of landtypes. We did not see clear disclosure regarding treatment units that may be proposed on landtypes with “severe” sediment hazards or erosion risks. Table 3-70 (page 3-244) indicates that the preferred alternative includes the highest acreage of timber harvest, 1,434 acres, on sensitive soils. Landtype 112 is stated to be a “landtype of concern” and accordingly no harvest is proposed on this landtype. However, landtype 112 is identified as having only “moderate” sediment hazard related to timber management in Table 3-68, whereas landtypes 101, 103, 252 and 252 are shown as having “severe” sediment hazards related to timber management. Is any timber harvest proposed on these “severe” sediment hazard landtypes? Similarly is any road construction proposed on “severe” road management hazard landtypes (i.e., landtypes 101, 103, 108, 112, 552)? We



generally recommend avoidance of tractor timber harvest and road construction in areas with high risk of erosion potential.

18. We are pleased that Table 3-71 (pages 3-247, 3-248) appears to show that no treatment units would result in exceedances of the Regional Standard of 15 percent detrimental soil disturbance. Units 23, 32, and 40C seem to come closest to the Regional Soil Standard at 12 and 13 percent detrimental soil disturbance in some alternatives, including the preferred alternative. These units are all shown as tractor harvest units in Table 2-6 for the preferred alternative. Would it be more conservative to switch these units to skyline cable harvest to reduce risk of exceeding the Regional Soil Standard?
19. The DEIS states that all types of detrimental soil disturbance will be considered in the examination of the existing condition and analysis of the environmental effects, including road construction, timber harvest, and fire (page 3-243). Although the DEIS later states that authorized forest roads, as defined in 36 CFR 212.1, are not considered part of the productive land base, and thus, do not count toward the 15% soil quality standard (page 3-251). It appears to us that all potential direct and indirect environmental effects, including effects on soils from all proposed activities including forest roads should be evaluated and disclosed to meet NEPA disclosure requirements (40 CFR 1502.16). Are road construction effects on soil disturbance fully disclosed in the DEIS Chapter 3 soils analysis?
20. We are pleased that coarse woody debris would be retained on harvest units for nutrient cycling and to maintain soil productivity (Table 3-74, page 3-255). We fully support retaining adequate amounts of woody debris on-site following vegetative treatments to maintain soil productivity.
21. It is stated that timber management staff will conduct monitoring, including soil disturbance transect information and walk-through surveys to monitor during and after timber sale activity (page 2-51). We assume this will include post-project implementation soil monitoring to ensure compliance with soil quality standards. How long will such soil monitoring occur after harvests and road construction? How many sites will be monitored and evaluated for soil disturbance and compliance with soil quality standards?

### Monitoring

22. We consider monitoring to be an integral part of land management. The EPA endorses the concept of adaptive management whereby effects of implementation activities are determined through monitoring (i.e., ecological and environmental effects). It is through the iterative process of setting goals and objectives, planning and carrying out projects, monitoring impacts of projects, and feeding back monitoring results to managers so they can make needed adjustments, that adaptive management works. In situations where impacts are uncertain, monitoring programs allow identification of actual impacts, so that adverse impacts may be identified and appropriately mitigated. Monitoring also allows verification and documentation of environmental effects predicted during NEPA evaluation.

EPA particularly believes that water quality/aquatics monitoring is a necessary and crucial element in identifying and understanding the consequences of one's actions, and for determining effectiveness in BMPs in protecting water quality. The achievement of water quality standards for non-point source activities occurs through the implementation of BMPs. Although BMPs are designed to protect water quality, they need to be monitored to verify their effectiveness. If found ineffective, BMPs need to be revised, and impacts mitigated. We encourage adequate monitoring budgets for conduct of aquatic monitoring to document BMP effectiveness and long-term water quality improvements associated with road BMP work and road decommissioning.

Project monitoring is discussed in Chapter 2 including implementation and effectiveness monitoring of Water Quality Best Management Practices (pages 2-50, 2-51), and Appendix J. However little detail regarding water quality or aquatic monitoring for the proposed project is provided (e.g., if, where and when such monitoring may occur), to verify that the BMPs are effective as implemented to meet State water quality standards, or to validate DEIS predictions of minimal water quality impacts. We encourage adequate monitoring budgets for conduct of monitoring to document BMP effectiveness and effects of road construction and timber harvests. We encourage conduct of some aquatic monitoring to document and measure water quality impacts of the activities that are implemented. Although we would agree that the need for instream monitoring to identify water quality aquatic effects would be less for Alternatives 4 and 5 that involve no new road construction, and thus, less potential for occurrence of such effects.

We generally recommend that some aquatic monitoring be included in projects, using aquatic monitoring parameters such as channel cross-sections, bank stability, width/depth ratios, riffle stability index, pools, large woody debris, fine sediment, pebble counts, macroinvertebrates, etc.. Biological monitoring can be particularly helpful, since monitoring of the aquatic biological community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples.

We note that there may be PACFISH/INFISH Biological Opinion (PIBO) monitoring sites in the project area that could be used to help evaluate actual project effects (<http://www.fs.fed.us/biology/fishecolology/emp/index.html>). If there are PIBO monitoring sites in the area, perhaps they may be considered for their potential to evaluate project effects.

### Air Quality

23. The Pilgrim Creek Timber Sales Project action alternatives include 4,564 acres of ecosystem burning and varied amounts of logging slash burning depending on alternative (e.g., 1,434 acres of slash burning with the preferred alternative). Proposed burning and fuel treatments for each alternative are identified in Tables 2-1, 2-4, 2-7, and 2-11 (the wrong tables are referred to on page 3-323). The EPA supports judicious and well planned use of prescribed fire to reduce hazardous fuels and restore fire to forest ecosystems, and we recognize and support the national goal reduce the risk of uncontrolled wildfire in wildland-urban interface areas. Although as is well known, smoke from fire

contains air pollutants, including tiny particulates (PM<sub>10</sub> and PM<sub>2.5</sub>) which can cause health problems, especially for people suffering from respiratory illnesses such as asthma or emphysema, or heart problems. PM<sub>10</sub> and PM<sub>2.5</sub> particles are both of concern, although PM<sub>2.5</sub> is greater concern because it can penetrate into the lungs whereas larger particles (included in the coarse fraction of PM<sub>10</sub>) deposit in the upper respiratory tract. Particulate concentrations that exceed health standards have been measured downwind from prescribed burns.

In addition to health-based standards to protect ambient air quality, the Clean Air Act requires special protection of visibility in the nation's large National Parks and Wilderness Areas (identified as mandatory Class I Federal areas) and establishes a national goal for "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I federal areas which impairment results from man-made air pollution." EPA's Clean Air Act implementing regulations require states to submit State Implementation Plans that, among other things, demonstrate attainment of the National Ambient Air Quality Standards (NAAQS), as well as reasonable progress toward the national visibility goal. Actions by Federal Land Managers that lack adequate mitigation of air quality impacts could impede a state's ability to meet Clean Air Act requirements. It is important that Project activities, when combined with air quality impacts from external sources, do not adversely impact the NAAQS or air quality related values (AQRVs) such as visibility.

The Pilgrim Creek project area is located in Montana Airshed 1 (page 3-323). The Cabinet Mountains Wilderness Class I air quality area is located north of the project area, as is the Libby PM 2.5 air quality non-attainment area, and the Whitefish and Kalispell PM-10 non-attainment areas are further away east northeast. We generally recommend that the EIS include a map showing the relative locations of Class I areas and any PM<sub>10</sub> and PM<sub>2.5</sub> non-attainment areas that may be affected relative to areas of prescribed burns to improve public understanding of the proximity of sensitive areas to proposed burning activities. We did not see such a map in the DEIS.

We are pleased that all prescribed burning would be carried out under the oversight of Montana/Idaho State Airshed Group and will comply with the current Federal and state management plans (pages 3-322, 3-329). We suggest that the website for the Montana/Idaho State Airshed Group, <http://www.smokemu.org/> be displayed in the EIS, since it may be of interest to the public. Table 3-95, "Modeled Particulate Production Pretreatment vs. Post Treatment for All Action Alternatives" (page 3-327) shows that all action alternatives would generate particulates during burning, although the particulate units reported in this table are not stated.

The DEIS states that the smoke produced would be in compliance with the Montana/Idaho State Airshed Group thus causing no significant impact to the airshed (page 3-329). The Airshed Group tries to limit burning to periods of good smoke dispersion, although it states that general wind patterns may cause smoke to drift into Libby, Thompson Falls, Glacier National Park and the Flathead Valley, and that visibility may be temporarily reduced until prevailing weather influences mix and disperse smoke (page 3-330).

Table 3-96 (pages 3-331, 3-332) indicates that winds that would transport smoke toward the Class I, Cabinet Mountains Wilderness Area, would occur less than 26% of days in the spring or the fall, although smoke could impact visibility if burning occurs when wind directions blow in the direction of the Wilderness Area. The DEIS states that the probability of impacting air quality of Cabinet Mountains Wilderness is low (page 3-332). It also appears that the probability of impacting other Class I Areas (e.g., Glacier National Park) or air quality non-attainment areas is low.

We appreciate the discussion of mitigation measures to reduce air pollutant emissions during burning (page 3-333), and information regarding potential air quality impacts of prescribed burning, including Federal and States air particulate standards (page 3-323). We often recommend additional disclosures such as quantifying pollutant emissions (i.e., particulates) as much as possible for any prescribed burning and for construction, traffic, and wind erosion on new and existing roads for activities associated with this project (e.g., see pages 25 and 26 of the 2010 Montana/Idaho Airshed guide found at, <http://www.smokemu.org/docs/20100601OpsGuide.pdf> ).

We encourage consideration of additional mitigation when air pollutants are projected to be emitted in substantial amounts (i.e. fugitive dust control requirements/road surfacing requirements, use of combustion technology such as air curtain destructors, <http://www.airburners.com/principle.html>, etc.). The DEIS states that other methods of slash treatment and site preparation are available, but most alternatives require costly equipment, and can cause excessive soil disturbance (page 3-321). It would be of interest to identify and discuss these other methods and their cost in comparison to pile burning.

We also recommend that the FEIS include: (1) discussion of appropriate smoke monitoring techniques and mitigation to minimize effects to nearby residents downwind of prescribed burns (including meteorological conditions favorable for mitigated prescribed fire smoke and alternatives to prescribed fire such as mechanical fuel reduction methods); (2) requirements for the incorporation of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008, <http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf> ) into the site-specific burn plans designed for each prescribed burn conducted under this project; and (3) commitment to public notification of pending burns. It is important that residents downwind of burn areas be notified prior to the proposed prescribed burning, since even though burns will be scheduled during periods of favorable meteorological conditions for smoke dispersal, the weather can change causing smoke not to disperse as intended. This can be especially problematic for smoldering pile burns when a period of poor ventilation follows a good ventilation day.

The EPA also supports the beneficial use of biomass for energy recovery, or other uses that would not release biomass carbon into the atmosphere. It would be beneficial for the EIS to disclose any opportunities that might exist to utilize logging slash as a fuel for heat, electricity (or both), as well as any saleable markets for the material other than as a combustion fuel (such as novel construction materials like concrete reinforced with chipped slash, [http://www.materia.nl/575.0.html?&user\\_material%5Bmaterial\\_uid%5D=2145&cHash=b3a6a6a500](http://www.materia.nl/575.0.html?&user_material%5Bmaterial_uid%5D=2145&cHash=b3a6a6a500) ). There are efforts to promote the use of available biomass waste streams such as those that will be

available from projects like the Pilgrim Creek Timber Sale, and it is therefore important for forest management decisions to be informed of all available beneficial uses for wastes generated by the project. The presentation of such information in the FEIS would also better align with national goals for increasing the availability and use of biomass as a fuel, while maintaining ecological balances necessary for the responsible use of biomass as a fuel source.

## Climate Change

24. The DEIS includes minimal discussion regarding climate change (page 3-29). We often encourage inclusion of more detailed climate change information in NEPA documents since it contributes to improved public understanding of the effects of climate change on forest ecosystems and forest management, particularly the effects of hotter and drier conditions in stressing trees, increasing the frequency of bark beetle outbreaks, and allowing bark beetles to move northward or higher in elevation and into other ranges of their hosts or the ranges of new potential hosts. Climate change research indicates that earth's climate is changing, and that the changes will accelerate, and that human greenhouse gas (GHG) emissions, primarily carbon dioxide emissions (CO<sub>2</sub>), are the main source of accelerated climate change (United Nations Intergovernmental Panel on Climate Change (IPCC) , <http://www.ipcc.ch/> ).

Forest Service guidance on how to consider climate change in project-level NEPA documents can be found at, [http://www.fs.fed.us/emc/nepa/climate\\_change/includes/cc\\_nepa\\_guidance.pdf](http://www.fs.fed.us/emc/nepa/climate_change/includes/cc_nepa_guidance.pdf), and suggests EIS analysis and disclosure of the following:

- **The effect of a proposed project on climate change.** (GHG emissions and carbon cycling). Examples include: short-term GHG emissions and alteration to the carbon cycle caused by hazardous fuels reduction projects, and avoiding large GHG emissions pulses and effects to the carbon cycle by thinning overstocked stands to increase forest resilience and decrease the potential for large scale wildfire.
- **The effect of climate change on a proposed project.** Examples include: effects of expected shifts in rainfall and temperature patterns on the seed stock selection for reforestation after timber harvest and effects of changed stream hydrographs due to earlier snowmelts.

Climate change appears to be a factor influencing some bark beetle outbreaks. Temperature influences everything in a bark beetle's life, from the number of eggs laid by a single female beetle, to the beetles' ability to disperse to new host trees, to individuals' over-winter survival and developmental timing. Elevated temperatures associated with climate change, particularly when there are consecutive warm years, can speed up reproductive cycles and reduce cold-induced mortality. Shifts in precipitation patterns and associated drought can also influence bark beetle outbreak dynamics by weakening trees and making them more susceptible to bark beetle attacks, (<http://www.fs.fed.us/ccrc/topics/bark-beetles.shtml> ). Climate change may increase stress to ponderosa pine seedlings, and affect the ability of ponderosa pine and other species to prosper through time, and may have added to stress factors leading or affecting the current bark beetle

attacks.

We agree with the DEIS statement that insect attacks are likely to intensify in severity, frequency, and size (page 3-29). We note that wildland fire frequency has increased in the west and altered fire regimes over the last twenty years due to climate change. More frequent fires are currently burning for extended periods of time (average of 5 weeks) compared to the infrequent fires lasting less than one week that were common prior to the mid-1980s. Large wildfire activity increased in the 1980s, with higher large fire frequency, longer wildfire durations, and longer wildfire seasons; with the greatest increases occurring in mid-elevation.

EPA Region 8 suggests a general four step approach to address climate change in NEPA documents that appears consistent with the Forest Service guidance.

- Briefly discuss the link between greenhouse gases (GHGs) and climate change, and the potential impacts of climate change, (see <http://www.epa.gov/climatechange/> , <http://www.fs.fed.us/ccrc/> , <http://www.ipcc.ch/> ).
- Describe the capacity of the proposed action to adapt to projected climate change effects, including consideration of future needs.
- Characterize, quantify and disclose the expected annual cumulative emissions of GHGs attributable to the project, using annual CO<sub>2</sub>-equivalent as a metric for comparing the different types of GHGs emitted. It is suggested that the project's emissions be described in the context of total GHG emissions at regional, national and global scales (over the lifetime of the project).
- Discuss potential means to mitigate project-related emissions as appropriate pursuant to CEQ regulations (40 CFR Sections 1502.14(f), 1502.16(h), 1508.14).

### Forest Vegetation

25. The DEIS Chapter 3 discussion of forest vegetation provides helpful information regarding project effects on forest successional stages, fire ecology, species composition and forest structure. We support the need to restore fire as a natural disturbance process, and to help address competing and unwanted vegetation and fuel loads and fire risk and forest health. A significant amount of regeneration harvest is proposed with the preferred alternatives (i.e., total of 898 acres, with 512 acres of seed tree harvest, 386 acres of shelterwood harvest). It is stated that 10 or more trees per acres (tpa) would be left in regeneration harvests in Chapter 2 (page 2-36), although in Chapter 3 it states that as few as 4 tpa may be left in regeneration harvests (page 3-38). This should be clarified in the FEIS to promote consistent disclosure in the EIS document.

We note that Alternative 4 would involve 813 acres of regeneration harvest with 303 acres of seed tree harvest and 510 acres of shelterwood harvest, but timber harvests would be carried out without construction of new roads, which we find attractive.

While we do not oppose regeneration harvests to improve forest health and address other aspects of the project purpose and need, we generally favor understory thinning from below, slashing and prescribed fire to address fuels build-up with reduced ecological impacts. We also favor retention of the larger more vigorous trees, particularly trees of desirable tree species whose overall composition may be in decline (e.g., Ponderosa pine, aspen, white pine, whitebark pine). Larger trees are generally long-lived and fire resistant, and provide important wildlife habitat. Harvest of many live mature trees could potentially increase fire risk, as well as reduce wildlife habitat. If the forest canopy is opened too much by removal of large fire resistant trees it may promote more vigorous growth of underbrush and small diameter trees that would increase fuels and fire risk in subsequent years, contrary to the fire risk reduction purpose and need. We encourage consideration for retaining the best trees (i.e., insect and disease free, growing, full crowned trees) and most desirable tree species.

26. EPA also supports protection of old growth habitats and maintenance or restoration of native, late-seral overstory trees and forest composition and structure within ranges of historic natural variability. Old growth stands are ecologically diverse and provide good breeding and feeding habitat for many bird and animal species, which have a preference or dependence on old growth (e.g., barred owl, great gray owl, pileated woodpecker). Much old growth habitat has already been lost, and it is important to prevent continued loss of old growth habitat and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth (e.g., using passive and active management-such as avoiding harvest of old growth trees, leaving healthy larger and older seral species trees, thinning and underburning to reduce fuel loads and ladder fuels in old growth while enhancing old growth characteristics). Often lands outside the forest boundary have not been managed for the late-seral or old growth component, so National Forest lands may need to contribute more to the late-seral component to compensate for the loss of this component on other land ownerships within an ecoregion.

We are pleased that timber harvest is not proposed in designated old growth under any of the action alternatives (page 3-55). Table 3-11 (page 3-53) includes information on treatment units adjacent to old growth habitat. It is also stated that 530 acres of prescribed fire would occur in designated old growth in each alternative. Generally EPA does not object to treatments in old growth that are intended to protect old growth characteristics, such as thinning of understory or under burning to reduce fuel loads and ladder fuels in old growth. Such treatments may lessen the threat of stand removal by a wildfire and reduce competition with other vegetation to promote more resilient, larger diameter trees. Careful prescribed burning in old growth stands can reduce fuel loads and fire risk in such stands, and thus, may promote long-term protection and sustainability of old growth stands.

#### Noxious Weeds

27. Weeds are a great threat to biodiversity and can often out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Noxious weeds tend to gain a foothold where there is disturbance in the ecosystem, such as road building, logging, livestock grazing or fire activities. We are pleased that the KNF has a program to control noxious weeds (2007

KNF Invasive Plant Management and Record of Decision, page 3-295). EPA supports integrated weed management, and we encourage use of weed control measures at the earliest stage of invasion to reduce impacts to native plant communities. Weed prevention is the most cost-effective way to manage and control weeds by avoiding new infestations and spread of weeds, and thus, avoiding the need for subsequent weed treatments. We encourage tracking of weed infestations, control actions, and effectiveness of control actions in a Forest-level weed database.

We are pleased that the proposed Pilgrim Creek Timber Sales Project includes measures to control and manage spread of weeds (page 2-43, 2-46), post-project monitoring for weeds (page 2-52), and the DEIS includes a section discussing noxious weeds (pages 3-295 to 3-302). We note with the large amount of prescribed fire that is proposed it will be important to monitor burned areas for weed infestation. We encourage seeding of burned areas to reduce risk of weed spread.

While we support weed control, it is important to recognize that herbicide use for weed control has the potential to cause adverse effects to water quality and fisheries. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species. Montana's Water Quality Standards include a general narrative standard requiring surface waters to *be free from substances that create concentrations which are toxic or harmful to aquatic life*. We recommend that herbicide weed treatments be coordinated with the Forest botanist to assure protection to sensitive plants, and coordinated with fisheries biologists and wildlife biologists to assure that sensitive fisheries and wildlife habitat areas are protected.

Some suggestions to reduce potential water quality and fisheries effects from herbicide spraying that we didn't see listed among these weed management measures are: 1) streams and wetlands in any area to be sprayed be identified and flagged on the ground to assure that herbicide applicators are aware of the location of wetlands, and thus, can avoid spraying in or near wetlands; 2) use treatment methods that target individual noxious weed plants in riparian and wetland areas (depending on the targeted weed species, manual control or hand pulling may be one of the best options for weed control within riparian/wetland areas or close to water). We also recommend that use of picloram based herbicides (e.g., tordon) be avoided near aquatic areas, and that potentially toxic herbicides be applied at the lowest rate effective in meeting weed control objectives and according to guidelines for protecting public health and the environment.

Please also note that there may be additional pesticide use limitations that set forth geographically specific requirements for the protection of endangered or threatened species and their designated critical habitat. This information can be found at <http://www.epa.gov/espp/bulletins.htm>. You may also want to consider use of a more selective herbicide (clopyralid) in conifer associated communities to reduce impacts on non-target vegetation. We also note that spotted knapweed, which is a prevalent noxious weed species in western Montana, is non-rhizomatous and should be relatively easy to control with lower rates of the most selective low toxicity herbicides.

For your information, the website for EPA information regarding pesticides and herbicides is <http://www.epa.gov/pesticides/>. The National Pesticide Telecommunication Network (NPTN)



website at <http://nptn.orst.edu/tech.htm> which operates under a cooperative agreement with EPA and Oregon State University and has a wealth of information on toxicity, mobility, environmental fate on pesticides that may be helpful (phone number 800-858-7378).

28. Weed seeds are often transported by wind and water, animal fur, feathers and feces, but primarily by people. The greatest vector for spread of weeds is through motorized vehicles-cars, trucks, ATVs, motorcycles, and even snowmobiles. Weed seeds are often caught on the vehicle undercarriage in mud and released on the Forest. A single vehicle driven several feet through a knapweed site can acquire up to 2,000 seeds, 200 of which may still be attached after 10 miles of driving (Montana Knapweeds: Identification, Biology and Management, MSU Extension Service).

We believe an effective noxious weed control program should consider restrictions on motorized uses, particularly off-road uses, where necessary. Off-road vehicles travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. Restrictions on motorized uses may also be needed after burning and harvest activities until native vegetation is reestablished in the disturbed areas to reduce potential for weed infestation of the disturbed sites. Weed seed dispersal from non-motorized travel is of lesser concern because of fewer places to collect/transport seed, and the dispersal rate and distances along trails are less with non-motorized travel.

#### Wildlife/T&E Species

29. The DEIS indicates that some threatened and/or endangered (T&E) species may occur in the project areas such as the grizzly bear and Canada lynx. The DEIS states that land west of the Clark Fork River on the Cabinet Ranger District is included in the Clark Fork Bears Outside of the Recovery Zone (BORZ) polygon (page 3-113), but it also states that there is no evidence of a resident population of grizzlies south of the Clark Fork BORZ on the west side of the Clark Fork River reservoirs (page 3-114). It further states that the Pilgrim Creek Project is consistent with the Forest Plan Amendments for Motorized Access Management with the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones, and that an additional food storage order designed on the KNF to reduce bear/human conflicts and corresponding mortality risk. Accordingly the DEIS indicates that the proposed action is "not likely to adversely affect the grizzly bear" (page 3-119). This determination is based on: 1) no permanent increase in mortality risk resulting from the temporary increase in total road density in the Clark Fork BORZ polygon, 2) temporary roads constructed for the project will be restricted to the public, while the project is active, 3) Post-project, roads may be temporarily left open to allow the public an opportunity to harvest firewood, 4) Suitable secure habitat exists within and adjacent to project area, 5) there is the potential for temporary displacement, 6) No change to livestock or food attractant situation. The DEIS also states that the project is in compliance with the Endangered Species Act (ESA) based on consistency with the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones and completion of informal consultation with the U.S. Fish and Wildlife Service (USFWS).

In regard to the threatened Canada lynx, the DEIS reports that there are no reports of occurrences of lynx within the Pilgrim planning sub-unit (PSU), and that no lynx have been detected in or near the

Pilgrim Creek drainage in at least the last 20 years. The project area was not designated critical lynx habitat because it is not occupied by Canada lynx, although it contains habitat which is considered suitable for lynx despite the lack of recent evidence of use (page 3-121). It states that the Northern Rockies Lynx Management Direction (NRLMD) objectives, standards, and guides was used to evaluate the proposed project. The DEIS concludes that the proposed action will have “no effect” on the Canada lynx (page 3-130), based on: 1) meeting all standards, guidelines, and objectives designed to maintain lynx habitat; 2) vegetation management in stands that currently do not provide snowshoe hare habitat will enhance conditions for lynx; 3) there will be no increase in access; 4) the project area is not located in Canada lynx critical habitat; and 5) the lack of verified sightings anywhere on the District in the last 15 years makes it unlikely that lynx would be present or affected by project activities. It also states that the project is consistent with ESA as evidenced through consultation with the USFWS and receipt of concurrence (page 3-130).

30. If it is found that the finally selected project alternative may adversely affect any T&E species, we recommend that the final EIS include the associated USFWS Biological Opinion or formal concurrence for the following reasons:

(a) NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;

(b) The CEQ Regulations for Implementing the Procedural Provisions of NEPA strongly encourage the integration of NEPA requirements with other environmental review and consultation requirements so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1502.25); and

(c) The Endangered Species Act (ESA) consultation process can result in the identification of reasonable and prudent alternatives to preclude jeopardy, and mandated reasonable and prudent measures to reduce incidental take. These can affect project implementation.

Since the Biological Assessment and EIS must evaluate the potential impacts on listed species, they can jointly assist in analyzing the effectiveness of alternatives and mitigation measures. If T&E species are subsequently identified in the project area, EPA recommends that the final EIS and Record of Decision not be completed prior to the completion of ESA consultation. If the consultation process is treated as a separate process, the Agencies risk USFWS identification of additional significant impacts, new mitigation measures, or changes to the preferred alternative.

31. The DEIS includes helpful discussion regarding availability of snags for cavity nesting species such as pileated woodpeckers (pages 3-58 to 3-64). Table 3-13 (page 3-60) shows that Alternatives 2, 3, and 4 have greater potential to affect snag habitat. The DEIS estimates that with Alternative 2 the primary cavity excavator potential population level on NFS lands is estimated to drop from 84% to 81%, and with Alternatives 3 and 4 the primary cavity excavator potential population level on NFS lands would decrease from 84% to 82%. Although it states that this level of snag habitat is expected to provide for an associated species population level above 40 percent, which is thought to be the

minimum needed to maintain self-sustaining populations of snag-dependent wildlife (page 3-63).

We found the minimum required number of snags to be retained per acre in various vegetative habitats to be confusing. The DEIS states that the Northern Region Snag Management Protocol recommends that 4-12 snags per acre be left (page 3-63), but also states that all proposed units in Alternatives 2, 3, 4, and 5 maintain at least 40% snag level (page 3-64). It is not clear if the Northern Region Snag Management Protocol (4-12 snags per acre) or the 40% snag levels provides the snag retention requirement for the proposed project. This should be clarified in the FEIS.

Although a large amount of regeneration harvest appears to be proposed, and the DEIS indicates that Alternatives 2 and 4 include a project-specific amendment to suspend the requirement to retain all existing cavity habitat in MA10 (big game winter range) for the duration of the project (page 3-64), we are pleased that the DEIS also states that populations of species using cavity habitat should remain viable (page 3-78), and that overall potential population levels of cavity habitat species would remain above critical thresholds so as to be consistent with Forest Plan standards (page 3-64).

32. Biodiversity may be an important consideration for new projects or when special habitats (i.e., wetlands, threatened and endangered species habitat) will be affected. The state of the art for this issue is changing rapidly. We recommend that potential project impacts on biodiversity be at least briefly evaluated and discussed in the NEPA document. CEQ prepared guidance entitled, "Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act," [http://ceq.hss.doe.gov/publications/incorporating\\_biodiversity.html](http://ceq.hss.doe.gov/publications/incorporating_biodiversity.html).

### Roadless

33. Roadless areas often provide population strongholds and key refugia for listed or proposed species and narrow endemic populations due to their more natural undisturbed character. EPA supports protection of the pristine character and integrity of remaining minimally disturbed roadless areas to prevent further fragmentation and degradation of wildlife habitat, and to maintain or restore solitude and primitive recreation characteristics in such areas. The DEIS indicates that the project area boundary encompasses all or part of two IRAs; Huckleberry Mountain and Lone Cliff Smeads, which total approximately 14,000 acres (page 3-277). There are additional three IRA's adjacent or in close proximity to the project area.

Ecosystem burning appears to be the only activity proposed in the IRAs, with approximately 3,252 acres identified as potential areas to be treated with fire to improve wildlife habitat or to readapt sites to more historical fire regimes (page 3-280). We are pleased that the DEIS states that burning would have no effect on the natural integrity and apparent naturalness characteristics. We do not object to prescribed burning in roadless areas that would benefit the resiliency and long-term health of vegetative communities and reduce risk of catastrophic wildfire and improve wildlife habitat.



# **U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements**

## **Definitions and Follow-Up Action\***

### **Environmental Impact of the Action**

**LO - - Lack of Objections:** The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC - - Environmental Concerns:** The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO - - Environmental Objections:** The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU - - Environmentally Unsatisfactory:** The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

### **Adequacy of the Impact Statement**

**Category 1 - - Adequate:** EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 - - Insufficient Information:** The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

**Category 3 - - Inadequate:** EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

